ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

WEBERDRY PUR COAT

Version 1
Date of publication: 2023/05/30
Validity: 5 years
Valid until: 2028/05/29
Scope of the EPD®: Global

THE INTERNATIONAL EPD® SYSTEM

Registration number
The International EPD® System:
S-P-08939

Production plant: **Greece**

General information

Company information

Manufacturer: Saint-Gobain Weber

Production plant: Greece

Programme used: EN 15804:2012+A2:2019 Sustainability of construction works – Environmental product declaration - core rules for the product category of construction product and The International EPD® System
PCR identification: PCR 2019:14 version 1.11 for Construction products and Construction services
Prepared by: IVL Swedich Environemental Research Institute, EPD International Secretariat
UN CPC CODE: 35110 – Paints and varnishes and related products.

Owner of the declaration: Saint-Gobain Weber.
Product name and manufacturer represented: This EPD describes the environmental impact of weberdry PUR coat manufactured by Saint-Gobain Weber.
EPD® prepared by: LCA Central Team, Saint-Gobain Weber (Michael.Medard@saint-gobain.com)
Geographical scope of the EPD®: Global
EPD® registration number: S-P-08939
Declaration issued: 2023/05/30, valid until: 2028/05/29

Demonstration of verification: An independent verification of the declaration was made, according to EN ISO 14025:2010. This verification was external and conducted by a third party, based on the PCR mentioned above (see information below).

Programme information

PROGRAMME:	The International EPD® System
ADDRESS:	EPD International AB - Box 210 60 - SE-100 31 Stockholm - Sweden
WEBSITE:	www.environdec.com
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CEN standard EN 15804:2012 + A2:2019 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): PCR 2019:14 Construction Products, version 1.11
PCR review was conducted by: The Technical Committee of the International EPD® System
President: Massimo Marino
Independent third-party verification of the declaration and data, according to ISO 14025:2006:
☐ EPD process certification ☒ EPD verification
Third party verifier: Marcel Gómez, Consultoría Ambiental.
Tlf : 0034 630 64 35 93 – email : info@marcelgomez.com – www.marcelgomez.com
Approved by: The International EPD© System
Procedure for follow-up of data during EPD validity involves third part verifier: ☒ Yes ☐ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.
EPDs within the same product category but from different PROGRAMMEs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

Product description

Product description and description of use

Weberdry PUR coat is a pigmented, color & UV stable, highly permanent elastic, polyurethane coating, used as a topcoat for protection over exposed, polyurethane waterproofing membranes.

It is one component, UV-stable, aliphatic polyurethane topcoat, prolonging the life span of the waterproofing membrane, with normal pedestrian traffic, glossy-stable colour and non-chalking finish.

Certified for up to 25 years expected life span (EOTA) under weberdry PUR coat SYSTEM & EN 13813.

Consumption: 0.12 – 0.25 kg/m^2 applied in one or two layers.

This EPD applies for one specific product manufactured by Saint-Gobain Weber in the plant located in Greece.

All technical characteristics and properties for any product could be find on the website.

Technical data/physical characteristics:

Property	Results	Test Method
Elongation at break	180%	ASTM D412
Tensile strength	>20 Wmni	ASTM D412
Resistance to Water Pressure	No Leak	DIN EN 1928
Gloss retention after 2000h of accelerated aging (DIN EN ISO 4892-3. 400 Wen2)	Good	DIN 67530
Surface chalking after 2000h of accelerated aging (DIN EN ISO 4892-3.400 Wfm2)	No chalking observed. Chalking grade 0	DIN EN ISO 4628-6
Adhesion to weber pur seal	>2 N/rnm^2	EN 1542
Adhesion to cement	4.5 N/rnm^2	EN 13892-8
Hardness (Store A Scale)	85-90	ASTM D 2240 (15'')
Solar Reflectance Index (SRI) (white colour)	107	ASTM E1980-01
Infrared emittance (white colour)	0.89	ASTM C1371-04a
Solar Reflectance (white colour)	85	ASTM E903-12
IN accelerated ageing, in the presence of moisture	Passed - No significant changes	EOTA TR-010
Hydrolysis (5% KOH. 7days cycle)	No significant change	Inhouse Lab
Service Temperature	-40°C to +90°C	Inhouse Lab
Tack Free Time	1-3 hours	Conditions: 20°C. 50% RH
Light Pedestrian Traffic Time	12 hours	Conditions: 20 ºC, 50% RH
Final Cuing time	7 days	
Chemical Properties	Good resistance against acidic and alkali solutions (5%), detergents, seawater and oils.	

Advantages:

- Simple application (roller or airless spray).
- Increases the abrasion and wear resistance of the waterproofing membrane underneath.
- Provides high solar reflectance (white color), contributing to thermal insulation.
- UV & Color stable.
- Gives a glossy and easy-to-clean surface.
- No chalking effects.
- Resistant to stagnating water, heat and frost.
- Maintains its mechanical properties over a temperature span of -40°C to +90°C.
- The waterproofed surface can be walked on (light pedestrian traffic).

Main Uses:

- Used over: weber pur seal, etc. on surfaces with light pedestrian traffic (e.g. Roofs, Terraces, Balconies, etc.) that require a glossy, colour-stable and non-chalking finish.
- Waterproofing of Roofs.
- Waterproofing of Balconies, Terraces and Verandas.
- Protection of Polyurethane Foam Insulation.

Declaration of the main product components and/or materials

The composition range of the product is shown below. For its representation in the calculation model, an average product has been represented at the composition level, based on the contribution to the environmental impact of the different raw materials.

PRODUCT	WEIGHT (Kg/M^2)	Post-consumer recycled material, weight %	Biogenic material weight kg C/kg
Weberdry PUR coat	0.12-0.25	0	0
PRODUCT COMPONENTS	**WEIGHT (%)**	**Post-consumer recycled material, weight %**	**Biogenic material weight kg C/kg**
PU prepolymer	35 – 45 %	0 %	0 %
Pigments	15 – 20 %	0 %	0 %
Solvents	35 – 40 %	0 %	0 %
Additives	5 – 10 %	0 %	0 %
TOTAL	**100 %**	**0 %**	**0 %**
PACKAGING MATERIALS	**WEIGHT (kg)**	**WEIGHT (%) vs the product**	**Biogenic material weight kg C/kg**
Metal packaging	1.03E-01	10.28 %	0
Plastic wrap	6.20E-04	0.06 %	0
EURO Wood-pallet	4.06E-02	4.06 %	2.98E-03

During the life cycle of the product any hazardous substance listed in the “Candidate List of Substances of Very High Concern (SVHC) for authorization” has been used in a percentage higher than 0.1% of the weight of the product. The verifier and the PROGRAMME operator do not make any claim nor have any responsibility of the legality of the product.

LCA calculation information

TYPE OF EPD	Cradle to grave and module D
FUNCTIONAL UNIT	1 kg of product installed and with an assumed working life of 25 years
SYSTEM BOUNDARIES	Cradle to grave + Module D = (A+B+C) + D
REFERENCE SERVICE LIFE (RSL)	The RSL is considered to be up to 25 years, due to its nature and composition, this material is of high quality and proven durability.
CUT-OFF RULES	In general, the cut-off criteria are 1% of the consumption of renewable and non-renewable primary energy and 1% of the total input mass of the manufacturing process (according to the EN 15804 standard). In the evaluation, all available data of the production process is considered, i.e., all raw materials used, auxiliary materials used and energy consumption using the best available data sets in the reference database. The following processes have been excluded: • Manufacture of equipment used in production, infrastructure, or any other capital goods. • Transportation of personnel to the plant or from the production site. • Research and development activities. • Long-term emissions.
ALLOCATIONS	In general, whenever possible, allocation was avoided. Materials production was divided into families, and input and output data related to each were collected, when the data could not be directly attributed to a specific product, they were generally assigned to the total production of materials without differentiation. The allocation of the consumption of common inputs such as water consumption, as well as common production outputs, such as solid waste generation, was made based on the total annual production of materials. The consumption reported for fuels and electricity was made at plant level, the allocation was assumed by total production (by mass). The modularity principle as well as the polluter-payer principle have been followed. The waste management data corresponds to all the waste generated in the facilities of the production plant, considering total generation of residues. Therefore, the reported data includes all the products made in the production plant.
GEOGRAPHICAL COVERAGE AND TIME PERIOD	Scope: Global. Data is collected from one production site located in Greece. Data collected for the year 2021. Cradle to grave study.
BACKGROUND DATA SOURCE	Ecoinvent v3.8
SOFTWARE	SimaPro v9.3

According to EN 15804:2012+A2:2019, EPDs of construction products may not be comparable if they do not comply with this standard. According to ISO 21930:2017, EPDs might not be comparable if they are from different programmes.

LCA scope

System boundaries (X=included. MND=module not declared)

	PRODUCT STAGE			CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
	Raw material supply	Transport	Manufacturing	Transport	Construction-Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-recovery
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Geography	GR	GR	GR	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO

Specific data used	>90 % GWP- GHG
Variation products	Only one product is reported in this EPD
Variation sites	Only one site is reported for this product

Life cycle stages

Figure 1.Flow diagram of the Life Cycle

A1-A3, Product stage

Description of the stage:
The product stage of the Weber products is subdivided into 3 modules A1, A2 and A3 respectively “Raw material supply”, “Transport to the manufacturer” and “Manufacturing”. The aggregation of the modules A1, A2 and A3 is a possibility considered by the EN 15804 standard. This rule is applied in this EPD.

Description of the scenarios and other additional technical information:
A1, Raw materials supply

For the product, a model has been made and calculated per kilogram of product. The specific consumption per kilogram of product is calculated in kg/m^2.

For the quantification of impacts associated with raw materials, 100% of the components reported in the production of materials have been used, including main and secondary raw materials.

A2, Transport to the manufacturer

To determine the transport of raw materials, the data collected by the production plant regarding their raw materials and data referring to their supply have been used. Additionally, the production plant has also reported the road transport distance for each of the secondary materials (consumables) used in the production activities of the year.

Consumable materials include fuels (diesel), oils and others. For each of these, the total quantity transported and the weighted average distance according to the quantity registered by each production center have been determined, to calculate the kg*kilometer ratio, which has been consolidated for each product.

Greece production center has reported the average distance and means of transport used for the mobilization of raw materials from their production site.

A3, Manufacturing

Based on the internal records of the production plant, the amount of materials produced per year, by nature of the product, has been reported.

These products come from the combination of different polymers; some products are the result of more than 5 combined polymers.

The main inputs of the manufacturing system are:

- Energy: Electricity and Fuels.
- Water: Well intake or network consumption.
- Consumables: External raw materials, Waste to be processed and/or recovered.
- Transports: Packaging and waste.

The main outputs of the production system are:

- Waste generated: Hazardous, Non-hazardous.
- Emissions to: air, water or soil (none).

Manufacturing process flow diagram

System diagram:
Manufacturing process flow diagram: Basic scheme of the weberdry PUR coat production line

1) Reception of raw materials
2) Quality control
3) Storage
4) Mix with resins and pigments
5) Mass distribution
6) Quality control

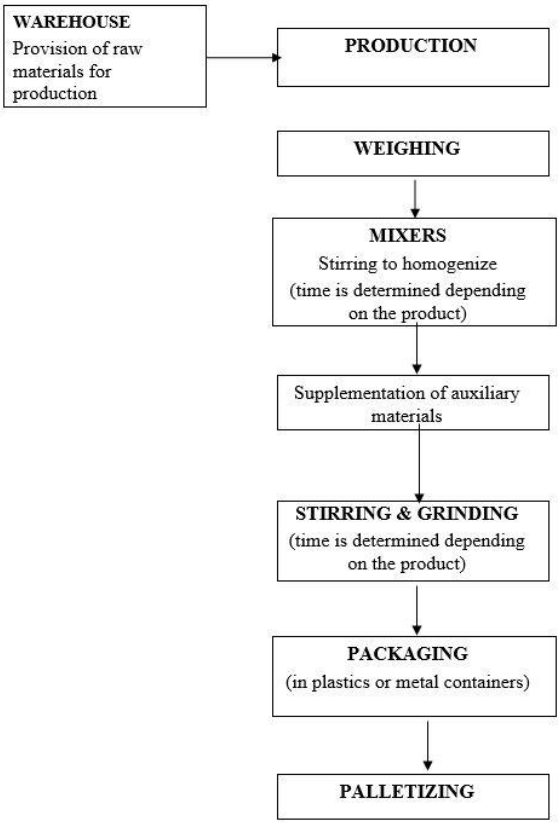


Figure 2. Manufacturing process for Saint-Gobain Weber Products

A4-A5, Construction process stage

Description of the stage: The construction process is divided into 2 modules: A4, Transport to the building site and A5, Installation in the building

A4, Transport to the building site:
Considering the wide distribution of products at an international and regional level, based on the sales distribution report, the total production sold by family and by country of destination is considered. For each of the destinations, according to information for internal use, the export ports in the country of origin and import ports in the destination countries are determined. An average transportation distance to the construction site is determined in each destination country.

For each case, the transport distances are determined and associated with a mode of transport: land freight vehicle, and maritime container ship. The detail of the technical parameters for the transport model is obtained from the Ecoinvent v3.8 database and its reference technical studies. The assumptions of this modeling are summarized below.

PARAMETER	VALUE	
Fuel type and consumption of vehicle or vehicle type used for transport e.g. long distance truck, boat, etc.	Transport, freight, lorry 16-32 metric ton, EURO6 {RER}| transport, freight, lorry 16-32 metric ton, EURO6 | Cut-off, U, diesel consumption 3.66E-02 kg/tkm	Transport, freight, sea, container ship {GLO}| transport, freight, sea, container ship | Cut-off, U, heavy fuel consumption: 2.52E-03 kg/tkm
Distance	Km by truck: 1308 km	Km by ship: 265 km
Capacity utilisation (including empty returns)	Percentage assumed by Ecoinvent database	Percentage assumed by Ecoinvent database
Apparent density:	1.18 kg / m³	
Volume capacity utilisation factor	1 (by default)	1 (by default)

A5, Installation in the building:

Considering the uses and installation, it can be reported that more than 99 % of the cases require a manual installation that does not imply the use of extra resources, neither energy, nor water nor application machines, only spreading on the surfaces where the product is applied, and it remains. It is considered that it does not generate extra waste not previously considered, apart from that referring to the packaging in which the product is stored and the packaging in which it is transported from the country of origin to the destination.

There is an estimation of 0.3 % of material loss during the installation process. Regarding waste management, plastic waste (container pots), pallets, metal waste and mixed packaging are considered, which are assumed to be 100 % recycled considering at an average distance scenario of 50 km.

B1-B7, Use stage (excluding potential savings)

Description of the stage: the use stage is divided into the following modules:

- The use stage is divided into the following modules: Use – B1, Maintenance – B2, Repair – B3,
- Replacement – B4, Refurbishment – B5, Operational energy and water use – B6 and B7
- Once installation is complete, no actions or technical operations are required during the use stages until the end of life stage. The product does not require any energy, water or material input to keep it in working order. Furthermore, it is not exposed to the indoor atmosphere of the building, nor is it in contact with the circulating water or the ground.

Description of scenarios and additional technical information:

Based on their design features and components, Saint-Gobain Weber products have an assumed working life of 25 years. Regardless of the installation conditions and multiple applications for final finishing, the maintenance needs are none. Therefore, the impact of these stages is 0.

C1-C4, End of Life Stage

Description of the stage: Landfill is considered to be the worst scenario.
The end of life stage is divided into the following modules:

C1, Deconstruction, demolition

The deconstruction and/or dismantling of the product take part of the demolition of the entire building.

C2, Transport to waste processing
The model use for the transportation is applied.

C3, Waste processing for reuse, recovery and/or recycling
The product is considered to be landfilled without reuse, recovery or recycling. No environmental loads are attributed to this stage.

C4, Disposal
The product is considered to be landfilled.

Description of the scenarios and additional technical information for the End of life:

PARAMETER	VALUE/DESCRIPTION
Collection process specified by type	1 kg collected with mixed construction waste.
Recovery system specified by type	0 % of Waste
Disposal specified by type	100 % to municipal landfill
Assumptions for scenario development (e.g. transportation)	Average truck trailer with 16-32 metric ton payload, EURO6, diesel consumption 3.66E-02 kg/tkm; 50 km distance to landfill

D, Reuse/recovery/recycling potential

Packaging could be partly reused, recycled or landfilled. The D module contains the benefits or load linked to the future use of recycled packaging.

100% of wastes are landfilled. There is no reuse nor recovery nor recycling of this product. Hence, no recycling benefits are reported on Module D.

LCA results

As specified in EN 15804:2012+A2:2019 and also the Product-Category Rules, the environmental impacts are declared and reported using the baseline characterization factors from ILCD. Specific data has been supplied by the plant, and generic data comes from Ecoinvent v3.8 databases. All emissions to air, water, and soil, and all materials and energy used have been included.

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

All data results are representative for 1 kg of weberdry PUR coat surface coating, as declared unit. Estimated impact results are only relative statements that do not indicate impact category endpoints, exceeding threshold values, safety margins, or risks.

Description of the system boundary, X = Included in LCA, MND = Module Not Declared

Environmental Impacts

Environmental indicators	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				REUSE, RECOVERY RECYCLING
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Climate Change [kg CO2 eq.]	5.87E+00	1.46E-01	1.42E-03	0	0	0	0	0	0	0	0	8.15E-03	0	5.35E-03	0
Climate Change (fossil) [kg CO2 eq.]	5.86E+00	1.46E-01	1.41E-03	0	0	0	0	0	0	0	0	8.14E-03	0	5.27E-03	0
Climate Change (biogenic) [kg CO2 eq.]	-4.78E-03	1.53E-04	9.16E-06	0	0	0	0	0	0	0	0	7.42E-06	0	7.97E-05	0
Climate Change (land use change) [kg CO2 eq.]	1.33E-02	5.54E-05	5.43E-07	0	0	0	0	0	0	0	0	3.26E-06	0	1.91E-06	0
Ozone depletion [kg CFC-11 eq.]	4.60E-07	3.63E-08	2.97E-10	0	0	0	0	0	0	0	0	1.89E-09	0	9.36E-10	0
Acidification terrestrial and freshwater [Mole of H+ eq.]	8.40E-02	5.18E-04	7.59E-06	0	0	0	0	0	0	0	0	2.31E-05	0	4.91E-05	0
Eutrophication freshwater [kg P eq.]	3.10E-04	1.04E-06	1.28E-08	0	0	0	0	0	0	0	0	5.81E-08	0	6.33E-08	0
Eutrophication freshwater [kg $(PO_4)^3$ eq.]	9.51E-04	3.18E-06	3.92E-08	0	0	0	0	0	0	0	0	1.78E-07	0	1.94E-07	0
Eutrophication marine [kg N eq.]	9.97E-03	1.15E-04	2.62E-06	0	0	0	0	0	0	0	0	4.59E-06	0	2.03E-05	0
Eutrophication terrestrial [Mole of N eq.]	1.21E-01	1.28E-03	2.88E-05	0	0	0	0	0	0	0	0	5.12E-05	0	2.23E-04	0
Photochemical ozone formation - human health [kg NMVOC eq.]	3.24E-02	4.84E-04	8.54E-06	0	0	0	0	0	0	0	0	1.97E-05	0	6.16E-05	0
Resource use, mineral and metals [kg Sb eq.][1]	1.99E-03	3.48E-07	3.06E-09	0	0	0	0	0	0	0	0	2.89E-08	0	2.40E-10	0
Resource use, energy carriers [MJ][1]	1.04E+02	2.37E+00	2.03E-02	0	0	0	0	0	0	0	0	1.23E-01	0	7.01E-02	0
Water deprivation potential [m^3 world equiv.][1]	4.30E+00	8.11E-03	5.79E-05	0	0	0	0	0	0	0	0	3.76E-04	0	1.75E-04	0

[1] The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

Resources Use

Resources Use indicators	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				D REUSE, RECOVERY, RECYCLING
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Use of renewable primary energy (PERE) [MJ]	7.47E+00	3.00E-02	3.59E-04	0	0	0	0	0	0	0	0	1.76E-03	0	1.65E-03	0
Primary energy resources used as raw materials (PERM) [MJ]	2.99E-02	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total use of renewable primary energy resources (PERT) [MJ]	7.50E+00	3.00E-02	3.59E-04	0	0	0	0	0	0	0	0	1.76E-03	0	1.65E-03	0
Use of non-renewable primary energy (PENRE) [MJ]	1.11E+02	2.52E+00	2.16E-02	0	0	0	0	0	0	0	0	1.31E-01	0	7.45E-02	0
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	2.53E-02	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources (PENRT) [MJ]	1.11E+02	2.52E+00	2.16E-02	0	0	0	0	0	0	0	0	1.31E-01	0	7.45E-02	0
Input of secondary material (SM) [kg]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Use of renewable secondary fuels (RSF) [MJ]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Use of non-renewable secondary fuels (NRSF) [MJ]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Use of net fresh water (FW) [m3]	1.12E-01	2.81E-04	2.35E-06	0	0	0	0	0	0	0	0	1.40E-05	0	8.42E-06	0

Waste Category & Output flows

	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				D REUSE, RECOVERY, RECYCLING
Waste Category & Output Flows	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Hazardous waste disposed (HWD) [kg]	7.49E-05	5.70E-06	4.96E-08	0	0	0	0	0	0	0	0	3.22E-07	0	1.50E-07	0
Non-hazardous waste disposed (NHWD) [kg]	1.27E+00	2.20E-01	1.06E-01	0	0	0	0	0	0	0	0	6.46E-03	0	1.00E+00	0
Radioactive waste disposed (RWD) [kg]	2.86E-04	1.61E-05	1.34E-07	0	0	0	0	0	0	0	0	8.34E-07	0	4.42E-07	0
Components for re-use (CRU) [kg]	0	0	1.12E-03	0	0	0	0	0	0	0	0	0	0	0	0
Materials for Recycling (MFR) [kg]	0	0	6.51E-02	0	0	0	0	0	0	0	0	0	0	0	0
Material for Energy Recovery (MER) [kg]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported electrical energy (EEE) [MJ]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported thermal energy (EET) [MJ]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Additional voluntary indicators from EN 15804 (according to ISO 21930:2017)

	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				REUSE, RECOVERY RECYCLING
Environmental indicators	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Climate Change [kg CO2 eq.][2]	5.65E+00	1.45E-01	1.39E-03	0	0	0	0	0	0	0	0	8.07E-03	0	5.20E-03	0

[2] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

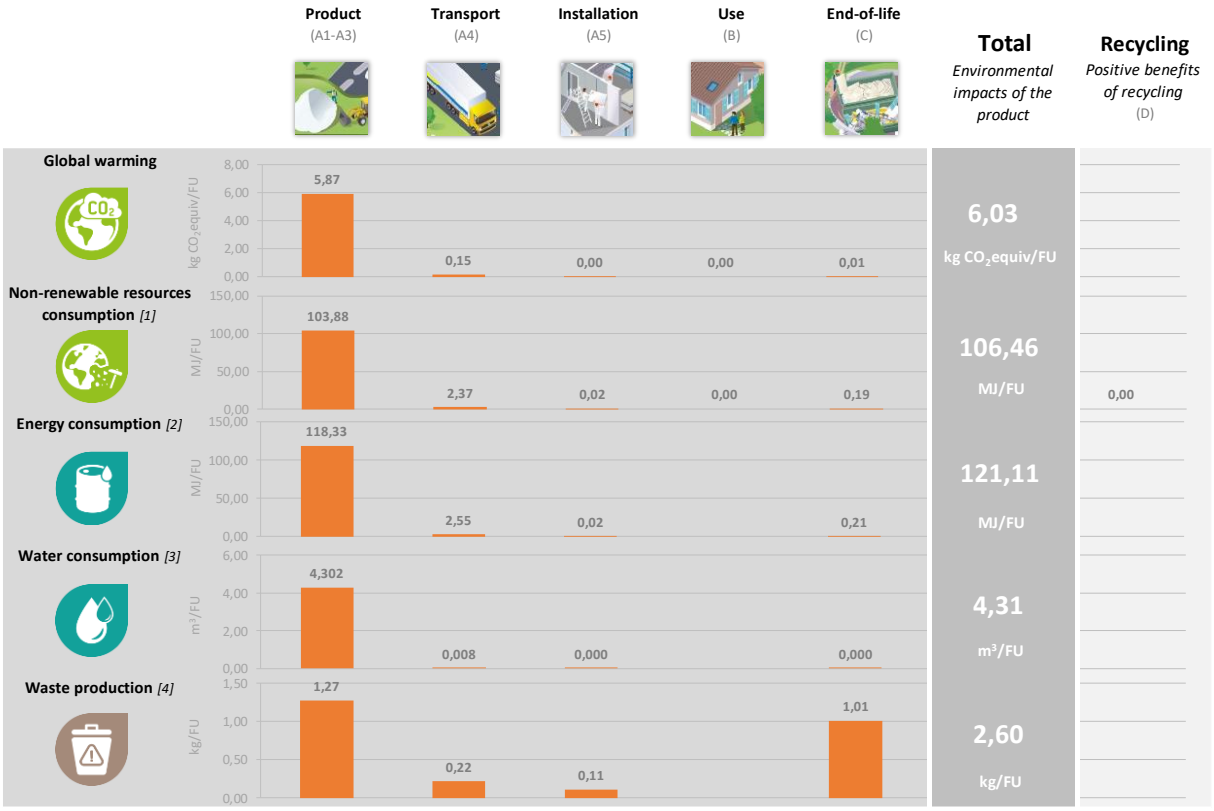
Information on biogenic carbon content

	PRODUCT STAGE
Biogenic Carbon Content in kg C	**A1 / A2 / A3**
Biogenic carbon content in product [kg]	0
Biogenic carbon content in packaging [kg]	2.98E-03

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO2.

LCA interpretation

The following figure refers to a declared unit of 1 kg of product expected to have an assumed working life of 25 years.



[1] This indicator corresponds to the abiotic depletion potential of fossil resources.
[2] This indicator corresponds to the total use of primary energy.
[3] This indicator corresponds to the use of net fresh water.
[4] This indicator corresponds to the sum of hazardous, non-hazardous and radioactive waste disposed.

With the graphic views above, it is possible to assess which steps of the LCA are the most impacting for the chosen indicators.

Global Warming Potential (Climate Change - GWP)
For GWP, the majority of contribution to this environmental impact is from the production modules (A1 – A3). This is primarily because the sources of greenhouse gas emissions are predominant in this part of the life cycle. CO_2 is generated upstream from the production of raw materials and electricity and is also released on site by the combustion of coke, diesel and natural gas. We can see that other sections of the life cycle also contribute to the GWP. However, the production modules contribute to over 97 % to the impact. Impacts from A4 (transport to the building site), waste disposal transportation in A5 (disposal after installation) and C (transport and disposal at the end of life) are much lower than A1-A3.

Non-renewable resources consumption
The consumption of non-renewable resources has the highest value in the production modules, due to the consumption of diesel within the factory, with a contribution to impact higher than 97 %.
The contribution to this impact of the other modules is very small and is mainly due to the non-renewable resources consumed during the transport of the product to the construction place.

Energy Consumption
Modules A1 – A3 have the highest contribution to total energy consumption, contribution higher than 97 %. Energy is consumed in the form of electricity, and diesel during the manufacturing of the Product.

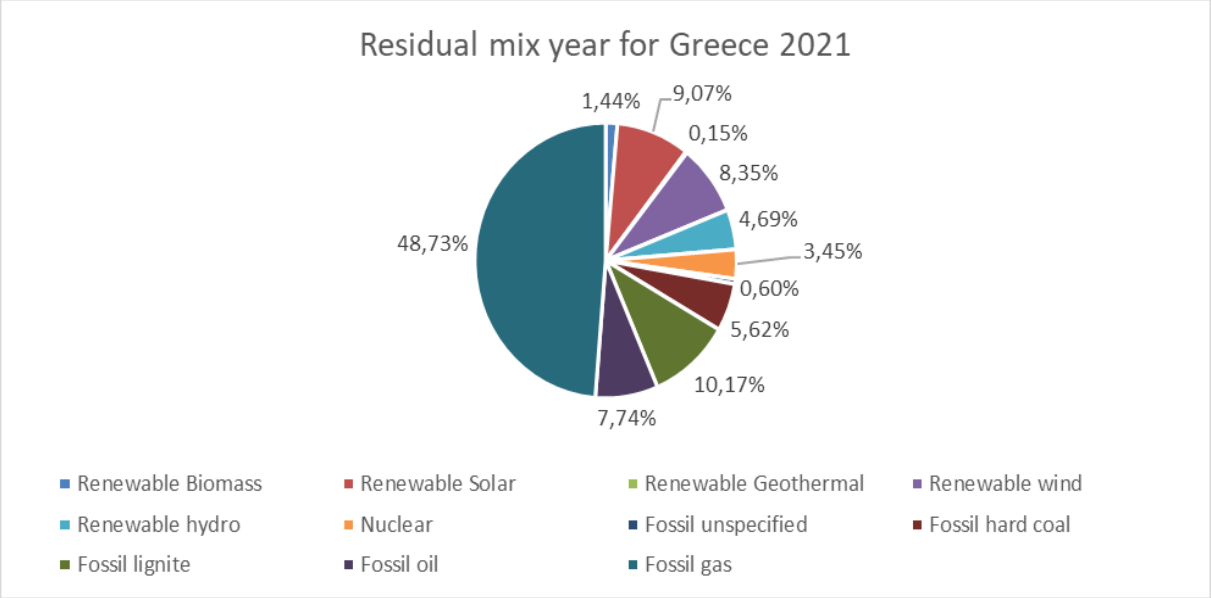
Water Consumption
Water is used within the manufacturing facility and almost all the impact comes from the production phase.

Waste Production
The largest contributor to the impact is the product phase (A1-A3) with a contribution to the impact of 49 % due to the production of Titanium dioxide. The end of life phase with a contribution to the impact around 39 % has also a remarkable contribution to the impact.

Additional information:

Electricity information

TYPE OF INFORMATION	DESCRIPTION
Location	Representative of Electricity purchased by Greece
Geographical representativeness description	• Renewable Biomass- 1.44 % • Renewable Solar- 9.07 % • Renewable Geothermal- 0.15 % • Renewable wind- 8.35 % • Renewable hydro- 4.69 % • Nuclear- 3.45 % • Fossil unspecified- 0.60 % • Fossil hard coal- 5.62 % • Fossil Oil- 7.74 % • Fossil lignite- 10.17 % • Fossil gas- 48.73 %
Reference year	2021
Type of dataset	Cradle to gate from Ecoinvent v3.8 database
Source	European Residual Mixes 2021
CO_2 emission kg CO_2 eq. / kWh	444.63 (g/kWh)



Global warming potential for market application

Based on technical product properties all environmental impact indicators may be quantifyied for usual market product applications. As additional information, the following results present the GWP indicator for a typical application of weberdry PUR coat on surfaces.

Parameter	Unit	A1	A2	A3	A1+A2+A3	A4	A5	C2	C4	Total
Density	kg/m^3	1.18E+00	1.18E+00	1.18E+00	1.18E+00	1.18E+00	1.18E+00	1.18E+00	1.18E+00	1.18E+00
Average weight application	kg/m^2	1.85E-01	1.85E-01	1.85E-01	1.85E-01	1.85E-01	1.85E-01	1.85E-01	1.85E-01	1.85E-01
Minimum weight application	kg/m^2	1.20E-01	1.20E-01	1.20E-01	1.20E-01	1.20E-01	1.20E-01	1.20E-01	1.20E-01	1.20E-01
Maximum weight application	kg/m^2	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01
GWP – total	kg CO_2 eq. / kg	4.09E+00	1.84E-01	1.60E+00	5.87E+00	1.46E-01	1.42E-03	8.15E-03	5.35E-03	6.03E+00
GWP – average	kg CO_2 eq. / kg	7.56E-01	3.40E-02	2.96E-01	1.09E+00	2.71E-02	2.62E-04	1.51E-03	9.90E-04	1.12E+00
GWP – min	kg CO_2 eq. / m^2	4.90E-01	2.20E-02	1.92E-01	7.05E-01	1.75E-02	1.702E-04	9.78E-04	6.42E-04	7.24E-01
GWP – max	kg CO_2 eq. / m^2	1.02E+00	4.59E-02	4.00E-01	1.47E+00	3.66E-02	3.55E-04	2.04E-03	1.34E-03	1.51E+00

Data quality

Inventory data quality is judged by geographical, temporal, and technological representativeness. To cover these requirements and to ensure reliable results, first-hand industry data crossed with LCA background datasets were used. The data was collected from internal records and reporting documents from Saint-Gobain Weber. After evaluating the inventory, according to the defined ranking in the LCA report, the assessment reflects good inventory data quality.

Environmental impacts according to EN 15804:2012 + A1

The following tables presents results of weberdry PUR coat according to EN 15804 +A1.

	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				REUSE, RECOVERY, RECYCLING
Environmental impacts	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Global Warming Potential (GWP) [kg CO2eq.]	5.65E+00	1.45E-01	1.39E-03	0	0	0	0	0	0	0	0	8.07E-03	0	5.20E-03	0
Ozone depletion (ODP) [kg CFC 11eq.]	4.33E-07	2.88E-08	2.35E-10	0	0	0	0	0	0	0	0	1.50E-09	0	7.41E-10	0
Acidification potential (AP) [kg SO2eq.]	7.05E-02	4.19E-04	5.74E-06	0	0	0	0	0	0	0	0	1.90E-05	0	3.56E-05	0
Eutrophication potential (EP) [kg (PO4)3-eq.]	5.34E-03	5.51E-05	1.02E-06	0	0	0	0	0	0	0	0	2.41E-06	0	7.33E-06	0
Photochemical ozone creation (POCP) - [kg Ethylene eq.]	3.54E-03	1.85E-05	2.26E-07	0	0	0	0	0	0	0	0	9.57E-07	0	1.20E-06	0
Abiotic depletion potential for non-fossil resources (ADP-elements) [kg Sb eq.]	1.99E-03	3.48E-07	3.06E-09	0	0	0	0	0	0	0	0	2.89E-08	0	2.46E-10	0
Abiotic depletion potential for fossil resources (ADP-fossil fuels) [MJ]	8.86E+01	2.33E+00	1.98E-02	0	0	0	0	0	0	0	0	1.21E-01	0	6.76E-02	0

References

1. EPD International (2019) General Programme Instructions for the International EPD® System. Version 3.01, dated 2019-09-18.
2. The International EPD System PCR 2019:14 Construction products, Version 1.11.
3. EN 15804:2012+A2:2019 Sustainability of construction works – Environmental product declarations. Core rules for the product category of construction products.
4. ISO 21930:2007 Sustainability in building construction – Environmental declaration of building products.
5. ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations – Principles and procedures.
6. ISO 14040:2006 Environmental management. Life cycle assessment. Principles and framework.
7. ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines.
8. LCA report of Saint-Gobain Weber products (2022).